Comparison of Manual Vacuum Aspiration With Dilatation and Curettage For Missed Miscarriage

Salma Achakzai,[1] Khanda Gul,[1*] Safia Bibi, [1] Fozia Muhammad Bukhsh [1]

ABSTRACT

Objective To compare the safety and effectiveness of manual vacuum aspiration (MVA) with dilatation and curettage (D&C) for the management of missed miscarriage.

Study design *Comparative study.*

Place & Duration of study *Department of Obstetrics and Gynecology Unit 4, Bolan Medical Complex Hospital Quetta, from September 2018 to March 2019.*

Methodology *Patients were randomly divided in two groups by using lottery method. In group I females underwent MVA and in group II D&C. Operative time and uterine perforation if occurred were noted. Post procedure patients were monitored for blood loss and hospital stay. All information was recorded in a pre designed form. The data were analyzed by using SPSS version 21.*

Results *A total of 100 patients were included in this study. In MVA group, mean age of patients was 29.47±6.95 year and in D&C group 28.90±6.41 year. Mean operative time was 7.63±1.69 min with MVA and 11.47±2.62 min with D&C. In MVA group, no perforation observed while in D&C group 2 (6.7%) patients had uterine perforation. The mean blood loss was 26.23±3.09ml with MVA and 32.93±5.11ml with D&C. The mean hospital stay was 4.73±1.17 hours with MVA and 8.37±1.73 hours with D&C. The difference was significant (P<0.05).*

Conclusion *MVA had better outcome in patients with missed miscarriage as compared to D&C.*

Key words *Manual vacuum aspiration, Dilatation and curettage, Missed miscarriage, Uterine perforation, Hospital stay.*

INTRODUCTION:

Miscarriage occurs in 25% to 50% of pregnancies before 14 weeks of gestation.[1,2] In Pakistan per year miscarriage rate of 29 per 1000 in women aged 15-49 years is reported. This is approximately 890,000 women who present with missed miscarriage or incomplete miscarriage annually.[3] The most common method for the management of first trimester miscarriage is vacuum aspiration or suction curettage.

Vacuum uterine aspiration allows for the simple evacuation of the uterus through a cannula attached to either an electric or manual vacuum source.[4,5] Dilatation and curettage was the routine procedure for evacuation of uterus which required a trained personnel, operating room and presence of an anesthetist. Sometimes blood transfusion ir required with risk of complications like hemorrhage, incomplete evacuation, perforation of uterus and infection.[6] MVA use has been in practice in Pakistan for the last few years. It is effective and a reasonable alternate to avoid prolonged hospital stay and expenses.[7,8] Less complications have been reported with MVA.[9,10]

Literature has reported several studies which showed MVA as better approach but still many consider D&C

[1] Department of Gynecology & Obstetrics Bolan Medical Complex Hospital Quetta.

Correspondence:
Dr. Khanda Gul [1*]
Department of Obstetrics & Gynecology
Bolan Medical Complex Hospital Quetta
Email: khandagul76@yahoo.com

as gold standard for clearance of conception material after missed miscarriage. This study was conducted to compare the outcome of manual vacuum aspiration with dilatation and curettage for the management of patients presenting with missed miscarriage to our facility.

METHODOLOGY:

This was a comparative study conducted in the Department of Obstetrics and Gynecology, Unit IV, Bolan Medical College Hospital Quetta, from September 2018 to March 2019. A total 60 consecutive cases, 30 cases in each group was calculated with 90% power of test, 95% confidence level and taking magnitude of mean time to remove conception material in females presenting with missed miscarriage. Non-probability, consecutive sampling technique was used.

Missed miscarriage was defined as sudden loss of conception material before 13 weeks of gestation (on LMP) and assessed through vaginal examination - blood loss >50ml through vagina (measuring wet cotton pads on weighing machine), beta hCG >500IU/mL (for confirmation of pregnancy). The outcome measure was time required to evacuate conception material which was measured from initiation till end of the procedure either MVA or D&C in minutes.

Uterine perforation was labelled if tear occurred in uterine cavity with and without injury to surrounding blood vessels or viscera such as the bladder or intestine on transvaginal ultrasound. Blood loss was measured in ml within first 24 hours after the procedure by using soaked pads on weighing machine. Hospital stay was counted in terms of days the patient stayed in hospital.

Patients of age 18-40 years, presenting with missed miscarriage were included. Females with uterine or adenexal pathology, ovarian cyst, hypertension (BP=140/90mmHg), irregular heart beat (HR<60 or >100bpm), with septic miscarriage, molar pregnancy, severe anxiety and Induced abortion were excluded. Approval was taken from the hospital ethical committee and informed consent was obtained. Demographic information including age, gestational age, parity, and BMI were noted. Patients were randomly divided in two groups by using lottery method. In group I females underwent MVA and in in group II D&C was performed.

Operative time and occurrence of uterine perforation were recorded. Patients were followed-up in gynecological ward for the assessment of blood loss within first 24 hours and hospital stay noted. All the information was recorded. The data was analyzed by using SPSS version 21. Quantitative variables like age, BMI, operative time, blood loss and hospital stay were presented as mean ± SD. Qualitative variables like parity and uterine perforation presented as frequency and percentage. Independent sample t-test was applied to compare mean operative time, blood loss and hospital stay in both the groups. Chi-square test was applied to compare frequency of uterine perforation between the groups. P-value <0.05 was considered as significant. Data was further stratified for age, gestational age, parity and BMI. Post-stratification, t-test for operative time, blood loss and hospital stay and Chi-square test for uterine perforation were applied to compare stratified groups with p <0.05 as significant.

RESULTS:

Total of 60 patients with 30 in each group were recruited**.** In MVA group the mean age of the patients was 29.47±6.95 year and in D&C group 28.90±6.41 year. In MVA group mean BMI of patients was 27.21±5.21kg/m^2 and in D&C group 27.21±5.21kg/m^2. In MVA group mean gestational age of patients was 10.03±1.30 weeks and in D&C group 10.20±1.35 weeks. In MVA group there were 7 (23.3%) primigravida, 6 (20.0%) primiparous (1 child), 8 (26.7%) had parity 2, 4 (13.3%) had parity 3 while 5 (16.7%) had parity 4. In D&C group there were 4 (13.3%) primigravida, 7 (23.3%) primiparous (1 child), 9 (30.0%) had parity of 2, 8 (26.7%) had parity 3 while 2 (6.7%) had parity 4.

In MVA group, mean operative time was 7.63±1.69min and In D&C group, 11.47±2.62min. The difference was significant (P<0.05). In MVA group, no perforation observed while in D&C group, 2 (6.7%) had uterine perforation. The difference was insignificant. In MVA group mean blood loss was 26.23±3.09ml. In D&C group mean blood loss was 32.93±5.11ml. The difference was significant (P<0.05). In MVA group, mean hospital stay was 4.73±1.17 hours and in D&C group 8.37±1.73 hours. The difference was significant (P<0.05). Details are given in table-IV.

Data was stratified for age of patients. In patients aged 18-30years, mean operative time was 7.53±1.89min with MVA and 11.61±2.75min with D&C. In patients aged 31-40years, mean operative time was 7.73±1.53min with MVA and 11.25±2.53min with D&C. The difference was significant in both groups for age strata (p<0.05).

Data was stratified for age of patients. In patients aged 18-30 years no uterine perforation occurred

Table I: Comparison of Operative Time in Both Groups

		Groups	
		MVA	D&C
Operative time (min)	n	30	30
	Mean	7.63	11.47
	SD	1.69	2.62

Independent Sample t-test = 6.728 p-0.000 (Significant)

Table II: Comparison of Uterine Perforation in Both Groups

		Groups		
		MVA	D&C	Total
Uterine perforation	Yes	0 (0.0%)	2 (6.7%)	2 (3.3%)
	No	30 (100%)	28 (93.3%)	58 (96.7%)
	Total	30 (100%)	30 (100%)	60 (100%)

Chi-Square Test = 2.069 p-0.150 (Insignificant)

Table III: Comparison of Blood Loss in Both Groups

		Groups	
		MVA	D&C
Blood loss (ml)	n	30	30
	Mean	26.23	32.93
	SD	3.09	5.11

Independent Sample t-test = 6.148 p-0.000 (Significant)

Table IV: Comparison of Hospital Stay in Both Groups

		Groups	
		MVA	D&C
Hospital stay (hours)	n	30	30
	Mean	4.73	8.37
	SD	1.17	1.73

Independent Sample t-test = 9.516 p-0.000 (Significant)

with MVA and 1 (5.6%) with D&C. In patients aged 31-40 years, uterine perforation was nil with MVA and 1 (8.3%) with D&C. The difference was insignificant. In patients aged 18-30 years mean blood loss was 26.60±2.80ml with MVA and 32.89±5.77ml with D&C. In patients aged 31-40 years mean blood loss was 25.87±3.42ml with MVA and 33.00±4.16ml with D&C. The difference was significant. In patients aged 18-30 years, mean hospital stay was 4.93±1.03 hours with MVA and 8.22±1.77 hours with D&C. In patients aged 31-40 years mean hospital stay was 4.53±1.30 hours with MVA and 8.58±1.73 hours with D&C. The difference was significant.

DISCUSSION:

Both D&C and MVA are used for first-trimester termination of pregnancy.[11] The most important difference between the two procedures is duration of surgery. MVA took less time than D&C.[12] In our study, mean operative time was 7.63±1.69min with MVA and 11.47±2.62min with D&C. The difference was significant. Besides this, MVA was easier to perform, which might account for the reports that MVA was more commonly used than D&C in the USA and other industrialized countries.[13-15] In this study operation took less time for completion than MVA. In our study, the mean age of the patients was comparable between the two groups. Other variables like BMI and gestational age were also not different. Thus baseline parameters did not have any significant impact of study outcome.

Uterine perforation did not occur with MVA while it

was noted in 6.7% cases with D&C. The difference was although insignificant. The mean blood loss was 26.23±3.09ml with MVA and 32.93±5.11ml with D&C and the difference was significant. Similarly the mean hospital stay was short with MVA. D&C patients stayed longer in hospital and the difference was significant. In a randomized trial reported in literature the mean operative time 6.56±1.48 minutes with MVA and 11.07±2.062minutes with D&C which was similar to our study. Other variables were also similar. In that study uterine perforation was found in 1.3% cases with D&C while none in MVA group.[9] In another study uterine perforation was higher in D&C group and occurred in 10% of the patients in MVA.[4] Another study reported uterine perforation in 2% of the cases with D&C while no patient in MVA had this complication.[10]

CONCLUSION:

MVA is a better procedure for missed miscarriage as compared to D&C. MVA was associated with less blood loss and short hospital stay. No uterine perforation occurred with MVA.

REFERENCES:

1. Allison JL, Sherwood RS, Schust DJ. Management of first trimester pregnancy loss can be safely moved into the office. Rev Obstet Gynecol. 2011;4:5-14.

2. Ammon Avalos L, Galindo C, Li DK. A systematic review to calculate background miscarriage rates using life table analysis. Birth Defects Res A Clin Mol Teratol. 2012;94:417-23. doi:10.1002/bdra.23014

3. Ansari R, Rathore S, Mustafa B. Manual vacuum aspiration: a safe and effective alternative for the surgical management of early pregnancy loss. Ann Abbasi Shaheed Hosp Karachi Med Dent Coll. 2014;19:28-31.

4. El Ghafar MA. Comparative study of dilatation and curettage, manual and electric vacuum aspiration as methods of treatment of early abortion in Beni Suef, Egypt. Int Res J Med Medical Sci. 2013;1:43-50.

5. Kripke C. Expectant management vs. surgical treatment for miscarriage. Am Fam Physician. 2006;74:1125-6.

6. Elzaher MA, Bedew M. Manual vacuum aspiration: a safe and cost-effective substitute for dilatation and curettage on the surgical management of first-trimester abortion. J Am Sci. 2013;9:581-5.

7. Das CM, Srichand P, Khursheed F, Shaikh F. Assessment of efficacy and safety of manual vacuum aspiration (MVA). JLUMHS. 2010;9:130-3.

8. Mansoor A, Jabeen J, Mansoor MH. Assessment of efficacy and safety of manual vacuum aspiration (MVA). J Rawal Med Coll. 2013;17:107-9.

9. Arif N, Ahmed RQ, Sheikh NA, Shahid A. Comparison of manual vacuum aspiration with suction and curettage in early loss of pregnancy. JSOGP. 2015;5:198-203.

10. Farooq F, Javed L, Mumtaz A, Naveed N. Comparison of manual vacuum aspiration, and dilatation and curettage in the treatment of early pregnancy failure. J Ayub Med Coll Abbottabad. 2011;23:28-31.

11. Wen J, Cai QY, Deng F, Li YP. Manual versus electric vacuum aspiration for first-trimester abortion: a systematic review. BJOG. 2008;115:5-13. doi:10.1111/j.1471-0528.2007.01572.x

12. Mahomed K, Healy J, Tandon S. A comparison of manual vacuum aspiration (MVA) and sharp curettage in the management of incomplete abortion. Int J Gynaecol Obstet. 1994;46:27-32. doi:10.1016/0020-7292(94)90305-0

13. Gan B, Huang Y, Qin J, Bu X, Xu Y, Hou D. Clinical observation on early termination of pregnancy using mini-cannulation. J Guangxi Med Univ. 2001;18:666-7.

14. Bird ST, Harvey SM, Nichols MD, Edelman A. Comparing the acceptability of manual vacuum aspiration and electric vacuum aspiration as methods of early abortion. J Am Med Womens Assoc. (1972). 2001;56:124-6.

15. Gazvani R, Honey E, MacLennan FM, Templeton A. Manual vacuum aspiration (MVA) in the management of first trimester pregnancy loss. Eur J Obstet Gynecol Reprod Biol. 2004;112:197-200. doi:10.1016/s0301-2115(03)00320-8.

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Salma Achakzai:Design of work, acquisition, analysis and interpretation of data.

Khanda Gul: Manuscript writing, design of work, acquisition, analysis and interpretation of data.

Safia Bibi: Drafting of work, critical revision

Fozia Muhammad Bukhsh: Final approval.

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